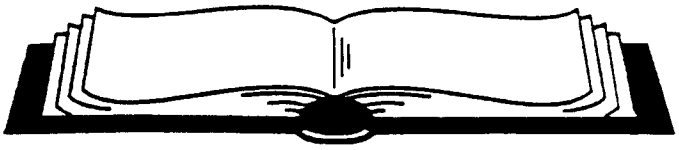
Code # 411
(for office use only)

NEW JERSEY

1999-2000 Guidelines and Application



BEST PRACTICES

ORIGINAL

Deadline for Application to County Office:
NOVEMBER 22,1999

Category	Mathematics (Application is limited to one category. See page 3 for details.)
Practice Name	"Welcome to the Real World"
Number of Schools with Practice	1 (If more than one school or district, read and complete information on page 2.)

County	Morris
District (Proper Name) District Address	School District Montville Township Public Schools street/p. o. box 221 Changebridge Road city Montville, NJ 07045 zip code
District Telephone	(973)331-7117 Fax (973)331-1307 Email www.montville.net
Chief School Administrator	Mr. Frank Sinatra, Interim Superintendent
Nominated School #1 (Proper Name) School Address	Montville Township High School street/p. o. box 100 Horseneck Road city Montville zip code 07045
School Telephone	(973)331-7100 Fax (973)334-0753 Email www.montville.net
School Principal	Mrs. Judith Rattner
Program Developer(s)	Mrs. Judith Paster and Ms. Jane R. Rutkowski
Chief School Administrator's or Charter School Lead Person's Signature	Judith Rattner

FOR USE BY COUNTY SUPERINTENDENT OF SCHOOLS ONLY

Approved: ✓ Yes ___ No **County Superintendent's Signature** _____

NEW JERSEY STATE DEPARTMENT OF EDUCATION

NEW JERSEY

BEST PRACTICES

1999-2000 APPLICATION

411

Application Requirements:

- **RESPONSES to the information and the statements below must be ANONYMOUS.** No reference should be made to the names of the district or the school(s). Use the words "the school" or "the schools" in referring to the applicant in responding to the statements.
- **USE ONLY THE SPACE PROVIDED ON THE APPLICATION FORM on pages 1, 2 (if applicable) and 4 and THE NUMBER OF LINES SPECIFIED FOR RESPONSES to the statements.** Do not include any additional materials, as they will not be reviewed in the selection process.
- Application must be **keyboarded on 8 ½" x 11" white paper, portrait format. Ten-point or larger computer font or twelve-pitch or larger typewriter font must be used.** (This sentence is in ten-point.)
- **KEYBOARDED RESPONSES** to the statements below must be **no more than a total of three pages. Keyboard the statement followed by the response.** Format your response to the number of lines specified.
- **The information on page 4 and the keyboarded responses** to statements must be printed or copied **on one side of the page. The information on pages 1 and 2 (if applicable)** must be printed or copied **on one side of the page.** Staple pages 1 and 2 (if applicable) and 4 and the keyboarded responses together.
- **The original application must be signed by the district chief school administrator or charter school lead person, indicating his/her approval.**
- **The original and seven copies of the application** must be submitted to the county superintendent of schools by **November 22, 1999**, with the **Itemized List of District Applications** form. Keep the seven copies of each application together with the original containing the signature of the district chief school administrator or charter school lead person on the top of each set.
- **FAILURE TO COMPLY WITH THE PROCEDURES FOR SUBMISSION OF THE APPLICATION MAY RESULT IN THE ELIMINATION OF THE APPLICATION.**

The following data is required to assist the panelists in the evaluation of the application:

Type of School	Grade Levels
___ Elementary School	_____
___ Middle School	_____
___ Junior High School	_____
X High School	11-12
___ Other: _____	_____

Practice Name "Welcome to the Real World"

Number of Schools with Practice 1

Number of Districts with Practice _____

Check the ONE CATEGORY into which the practice best fits.

___ Arts (Visual and Performing Arts)
___ Assessment/Evaluation
___ Bilingual Education and Diversity
___ Citizenship/Character Education
___ Early Childhood Education Programs
___ Educational Support/Guidance and Counseling Programs (services contributing to high student achievement)
___ Educational Technology
___ Health and Physical Education
___ Language Arts Literacy
X Mathematics
___ Professional Development
___ Public Engagement (family involvement and partnerships with business, community and/or higher education)
___ Safe Learning Environment
___ School-to-Careers/Workplace Readiness
___ Science
___ Social Studies
___ Special Education
___ World Languages

1. Describe the practice proposed for recognition, and list its objectives. Detail how the practice is innovative, how it promotes high student achievement and how it can be replicated. **(Maximum of 50 lines for response)**

2. Describe the educational needs of students that the practice addresses and how they were identified. List the *Core Curriculum including the Cross-Content Workplace Readiness Standards** addressed by the practice and describe how the practice addresses the standard(s). **(Maximum of 50 lines for response)**

3. Document the assessment measures used to determine the extent to which the objectives of the practice have been met. **(Maximum of 60 lines for response)**

*The 1996 edition of the ***Core Curriculum Content Standards*** published by the New Jersey State Department of Education was disseminated to all districts and charter schools and is available on line through the department's website at http://www.state.nj.us/education.

1. Describe the practice proposed for recognition, and list its objectives. Detail how the practice is innovative, how it promotes high student achievement and how it can be replicated.

"When are we ever going to use this stuff again?"

"Help! I am a senior in high school, and will be entering college in a few months. I don't know anything about being on my own. I can't even write out a check."

Students' comments of this nature motivated two math teachers in the school to help their students discover the relevance of mathematics to everyday life. Non-collegebound students have available to them a variety of courses that teach the mathematics of daily living. The traditional college prep course sequence does not provide opportunities for students to acquire life-management skills. This was the impetus for the teachers to develop a series of finance-related projects for their Advanced Mathematics students. In addition to making math more relevant, they believed they could address two other objectives as well: they could incorporate writing into the mathematics curriculum, and include the family in the student's education. With these goals in mind, the teachers designed projects that have the students "write mathematics."

The teachers believe that with increased independence comes increased responsibility, and the need to be informed about "welcome-to-the-real-world" issues. The projects required students to research money-related topics in the print media, the Internet, and by interviewing family members (or, in some instances, members of the community.) All of the topics are related to the course's curriculum.

One of the projects focused on payroll deductions. Students had to research what types of deductions might be taken from a paycheck, and whether those deductions are required or voluntary. Some of the students already had jobs, so they compared the types and percentages of their deductions with those of an adult who works full-time. What an eye-opener it was for them to see what percent of gross pay an adult's take-home pay is! (They were directed to let the people they spoke with know these were school projects, and were cautioned not to report any private, personal details.) Gross pay and net pay became part of their vocabulary.

Some students had (or will soon have) credit or debit cards. Learning about their similarities and differences, and discussing the advantages and disadvantages of each of these cards, led students to start thinking about developing money-management strategies: an advantage for both the students and their parents.

Another project referenced a small article from a financial magazine that talked about "tax freedom day." Students were required to ask a working adult what this meant, report on the conversation, and then write their thoughts on what they found out. This led to some lively conversations about government taxation and spending.

Learning about bank interest, dividends, mutual funds, the length of time it takes to pay off debt, what Individual Retirement Accounts are and if such vehicles exist for minors were among the topics addressed in this on-going series of projects. Each project either encouraged or required the teenagers to discuss the topic with an adult. They usually did what was anticipated: turn to Mom and Dad! Some students asked employees at the local bank for some information, one made a long-distance call (with parent's permission) to a relative who is a financial planner. Because of the relevancy to their lives, students aggressively attacked these projects with relish.

Project ideas came from relevant magazine or newspaper articles, the evening news, conversations with parents. Often class discussions and students' questions about one project sparked their interest and desire to learn about another topic, which led to an idea for the next one, so the project can be replicated and adapted for anyone's classroom or grade level.

At the end of the year, a two-part final exam project was the culminating activity. One part required the students to draw up a workable one-month budget for living expenses that an independent person might have to consider. The second part required them to write a thank you note to someone who generously provided guidance and information for their projects.

2. Describe the educational needs of students that the practice addresses and how they were identified. List the *Core Curriculum including the Cross-Content Workplace Readiness Standards** addressed by the practice and describe how the practice addresses the standard(s).

The projects are closely aligned with many of New Jersey 's Core Curriculum Content Standards for Mathematics (CCCS) and Cross-Content Workplace Readiness Standards (CCWRS).

The students enrolled in this course are high school juniors and seniors. This is a demanding math course that requires students to draw from their bank of math knowledge and make connections to the applications studied in class. It includes an in-depth study of polynomial functions, their applications to maximum and minimum problems, exponential functions (including growth and decay applications), and trigonometric functions. In order to assist the students in seeing connections between what we are doing in class and the "real world," projects relating to finance and daily living apply these concepts (CCCS 4.11.15) and have challenged the students to maximize their resourcefulness and creativity (CCCS 4.16.10; CCWRS 3.15). The students are developing an understanding of relationships and functions, and use them to represent and explain and model real-world phenomena (CCCS 4.11.15), and are using linear, quadratic, and exponential models to explain growth and change (CCCS 4.15.15) as they relate to financial aspects of life (CCWRS 1.12) and society (CCCS 4.16.3). This course requires students to commit themselves to time, effort, planning and thought (CCWRS 4.1 and 4.9). Our goal is to develop projects that help the students to enhance their reasoning ability and become self-reliant, independent mathematical thinkers (CCCS 4.4; CCWRS 3.10).

By design, the projects have students asking and solving math problems that relate to their high school curriculum and everyday experiences (CCCS 4.1.15 and 4.1.16). Budget development, and learning about paychecks, investment instruments, and financial tools (CCWRS 1.12) connect mathematics and mathematical ideas to the roles that mathematics plays in life (CCCS 4.3). Critical thinking and problem-solving skills are required to clearly understand the issues presented in the projects (CCWRS 3.1). Identifying and accessing resources and sources of information (CCWRS 3.4) and doing research via print material and the Internet (CCWRS 2.5, 2.6, 2.7) are important skills addressed. In addition, some projects encourage (others require) students talk with family members and members of the community (CCCS 4.16.5). By looking into the future toward a time of financial independence, and developing a budget that allows them to enjoy a comfortable lifestyle, the students have had to research current living expenses and predict future estimates of these expenses (CCCS 4.10.11). After the first draft of their budget, some students have noted that they had to readjust some of their numbers because they found that their budgets were not realistic (CCCS 4.10.12). The immediate and future applications of the questions and problems posed in the projects are challenging (CCCS 4.16.1), open-ended (CCCS 4.16.2), relevant to the way our society works financially (CCCS 4.16.3), relate math to the students themselves and their success (CCCS 4.16.4), have no regard to gender (CCCS 4.16.7), include topics beyond traditional computation (CCCS 4.16.9) and challenge students to maximize their mathematical potential and go beyond the school curriculum (CCCS 4.16.10 and 4.16.11).

In order to present and report their mathematical findings, students must organize, synthesize and evaluate information for appropriateness and completeness (CCWRS 3.8), analyze research to draw conclusions (CCWRS 3.12) and use word-processing and spreadsheets for their final reports (CCWRS 2.8). Many of the projects could not be done without calculators (CCCS 4.5.8). The students had to formulate questions and conjectures about information and problem situations (CCCS 4.2.9), organize information (CCWRS 3.8), draw conclusions (CCWRS 3.12), and reflect on and clarify their thinking (CCCS 4.2.10; CCWRS 4.3) in order to convincingly present their conclusions (CCWRS 3.1). Time restrictions and due dates have presented students with the challenge of developing self-management skills (CCWRS 4.1 and 4.9)

3. Document the assessment measures used to determine the extent to which the objectives of the practice have been met.

Each of the projects was designed to include an assessment rubric. Evidence of planning, mathematical accuracy, and clear, creative presentations were expected of the students. With one exception, the students were given the rubrics with the projects, so they were fully aware of their teacher's expectations. The exception was their final exam project. This project described a scenario in which they are 27 years old and living on their own. They work full time. Jobs and salaries were drawn "lottery-style." The students were required to research living expenses and present a budgetary breakdown of those expenses for one month. They were told that grading would be based on the overall depth with which they explored the expenses, and how they budgeted for those expenses within the scope of the salary they were allotted. Providing them with the list of items looked for in the rubric would have given them the game plan that they were supposed to come up with.

The teachers involved met on a regular basis to determine whether or not the direction the projects were taking met their objectives. Requiring the students to include their thoughts/reactions as part of each project assisted in maintaining focus, as did the opportunity for the students to include interesting parts of the conversations they had with their parents or other adults. Often student reactions and questions opened the door to another project or class discussion, and once the students realized that they had some input into their learning, their enthusiasm and the quality of their projects soared. Many of them made connections to previous projects, heightening various aspects of their financial discoveries.

The teachers believe that the most valuable assessments came from two places: the students and their parents. Students documented a new feeling of respect for a parent's knowledge and advice, as well as a more mature closeness with an adult role model. Student reactions included:

"...I was able to learn many things about living, and especially about myself. This was a way to apply my math education to real life."

"...this project let me get a feel for what it's like to live in the real world. It was a very smart idea to do this since in four years I will have to be doing all this myself. A little scary, isn't it?"

"...I am able to think rationally about how I can live responsibly....you (the teacher) motivated me to work harder."

"My parents thought I did such a good job on my budget project, they asked me to set up a family budget plan on the computer."

"My math teacher has been very influential in helping me understand the practical applications of math. I have been fortunate to have two knowledgeable people in the field of math to aid me - you (the father) and my teacher. (Signed) Your grateful son..." (From the thank you letter component of their final exam.)

"My Dad framed my thank you letter and hung it in his office."

Parents also provided feedback. Several parents called to say that the projects created opportunities for them to discuss setting goals and working towards them with their son or daughter. More than one parent said it opened the door to conversations that might not have taken place otherwise. The most touching response was a phone call from a father who talked about his daughter. She was a graduating senior who would go off to college shortly. He said that this was probably the last time he would be able to help her with her homework to this extent. His parting words: " Thanks for giving me these memories!"